Two new species of *Thelymitra* (Orchidaceae) from southeastern Australia

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Abstract

Thelymitra atronitida and *Thelymitra planicola* from southeastern Australia are described as new and illustrated. Their distribution, habitat, biology and conservation status are discussed. *Thelymitra atronitida* is a member of the complex of taxa surrounding *Thelymitra nuda* R. Br., its closest congener being *Thelymitra malvina* M.A. Clem., D.L. Jones & Molloy. *Thelymitra planicola* bears a superficial likeness to *Thelymitra pauciflora* R. Br. and *Thelymitra aristata* Lindl., and its possible relationship to these species is discussed. A key is provided to distinguish the new taxa from other members of the *Thelymitra nuda/pauciflora* complex in southeastern Australia.

Introduction

Thelymitra J.R. Forst. *et* G. Forst. is a large and complex genus consisting of about 70 described species, several described natural hybrids and an uncertain number of undescribed taxa. It is mainly concentrated in higher rainfall areas of temperate Australia, but a few species occur in tropical northeastern Australia, about 10 endemic species occur in New Zealand and four additional species occur in Indonesia, New Caledonia, New Guinea and the Philippines. While examining preserved and living plants as part of a revision of *Thelymitra* for Victoria (in preparation), it became evident that several distinct undescribed taxa exist in Victoria and at least some of these probably extend to neighbouring States. Due to a paucity of collections and several poor flowering seasons because of drought, some suspected undescribed taxa have not yet been satisfactorily studied and assessed, hence their status remains unresolved. However, this opportunity is taken to describe two new species that have been reasonably well collected in recent years, and are familiar to me from herbarium material as well as from living plants *in situ*.

Taxonomy

Thelymitra atronitida Jeanes, *sp. nov.*

Thelymitra malvinae M.A. Clem., D.L. Jones et Molloy affinis bracteis sterilibus duabus plerumque, floribus paucioribus autofertilibus facultative, lobo post-antheram atronitido plerumque, pilis caespitosis loborum lateralium albeis differt.

Type: Victoria. Beside Genoa Creek Track, c. 4 km WSW of Genoa, 27. x. 1999, *J.A. Jeanes* 613 (holotype MEL *2069953*, isotype CANB).

Glabrous terrestrial *herb*. *Tubers* not seen. *Leaf* linear to linear-lanceolate, 15–35 cm long, 5–12 mm wide, erect, leathery, canaliculate, dark green with a purplish base, ribbed abaxially, sheathing at base, apex acute. *Scape* 30–50 cm tall, 1.5–3.5 mm diam., straight, straw-coloured to purplish. *Sterile bracts* usually 2, occasionally 3, linear to linear-lanceolate, 1.5–7 cm long, 3–10 mm wide, green or purplish, acute to acuminate. *Fertile bracts* ovate-acuminate to obovate-acuminate, 5–25 mm long, 3–8 mm wide, green or purplish, sheathing pedicels. *Pedicels* 5–12 mm long, slender. *Ovary* cylindric to narrow-obovoid, 5–12 mm long, 2–4 mm wide. *Flowers* 2–8, (14–)20–26 mm across, moderately dark blue with darker longitudinal veins, opening readily only in hot weather. *Perianth segments* (7–)10–13 mm long, 3–8 mm wide, concave, often shortly apiculate; *dorsal sepal* ovate to elliptic; *lateral sepals* elliptic to lanceolate, slightly asymmetric; *petals* ovate to

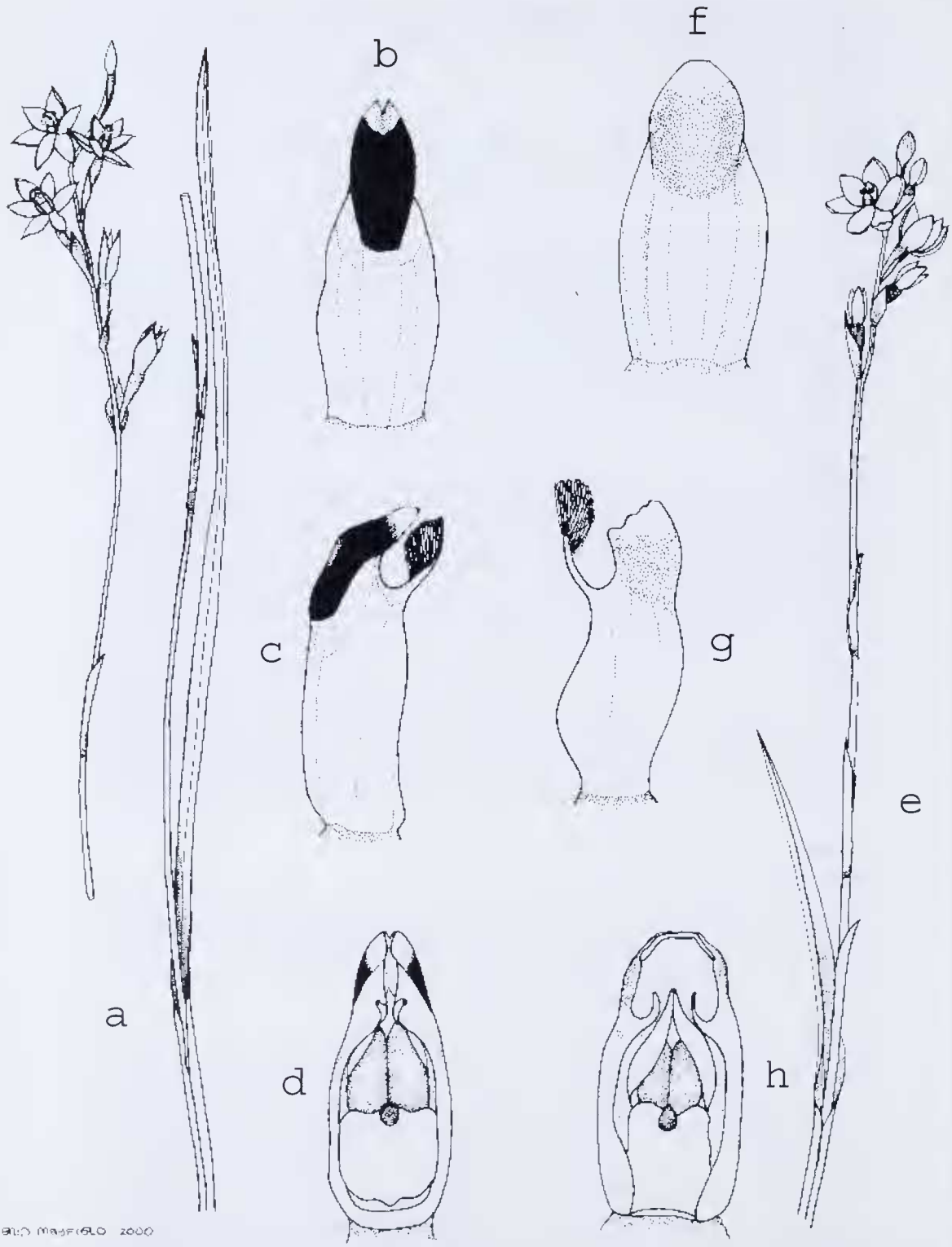

Figure 1. *Thelymitra atronitida*: **a** habit ? 0.5; **b** column from rear ? 6; **c** column from side ? 6; **d** column from front ? 6. *Thelymitra planicola*: **e** habit ? 0.5; **f** column from rear ? 6; **g** column from side ? 6; **h** column from front ? 6.

elliptic; *labellum* elliptic to lanceolate, often narrower than other segments; *column* erect from the end of ovary, 5.5–7 mm long, 2.5–3.5 mm wide, mostly pale blue; *post-anther lobe* 3–4 mm long, 1.5–2.5 mm wide, tubular, inflated, hooded, dorsally compressed, gently curved through c. 90°, apex shortly bilobed, lobes toothed, mostly glossy black, apex yellow; *auxiliary lobes* absent; *lateral lobes* 1.3–1.5 mm long, filiform, porrect at base then bent sharply upwards at about the middle, converging, each with a terminal toothbrush-like arrangement of white trichomes, the individual trichomes 1.2–1.6 mm long. *Anther* ovoid 2.6–3.3 mm long, 1.2–2.2 mm wide, with a short beak 0.5–0.8 mm long, situated towards apex of column; *pollinarium* 2–2.5 mm long; *viscidium* more or less circular, c. 0.5 mm diam.; *pollinia* white, friable, mealy. *Stigma* ovate-quadrate, 1.7–2.5 mm long, 1.8–2.2 mm wide, margins irregular, situated at base of column. *Capsules* obovoid, 12–15 mm long, 4–6 mm wide, erect, ribbed. (Fig. 1. a–d; Fig. 3)

Specimens examined: VICTORIA: Between Jones Creek Track and private property, W of Genoa River, 7. xi. 1970, *A.C. Beauglehole* 34425 (MEL *652511*); Near the intersection of East Wingan Rd and Princes Hwy. 24. x. 1999, *J.A. Jeanes* 643 (MEL *2069956*); On rail reserve near Darlimurla Station, 29. x. 1999, *J.A. Jeanes* 636 (MEL *2069955*); East Wingan Rd c. 500 m from Princes Hwy, 27. x. 1999, *J.A. Jeanes* 615 (MEL *2069959*)

Distribution and habitat: East Gippsland and Gippsland Highlands Natural Regions (Conn 1993). Currently known from a few sites in eastern Victoria, mostly in the Mallacoota/Genoa area of far East Gippsland, with an outlying more westerly population near Mirboo North in the Strzelecki Ranges (Fig. 2). Grows in heathy open forest, usually around the margins of grasstree plains, on well-drained sand or clay loams. A range extension into nearby southeastern New South Wales is anticipated, as similar habitat is known to occur there. Altitude: 5-200 m.

Conservation Status: Poorly known; suggest 3KC by criteria of Briggs & Leigh (1996).

Flowering period: Late October to early November.

Figure 2. Distribution of *Thelymitra atronitida*

Figure 3. *Thelymitra atronitida* Mallacoota area

Biology: This species is facultatively autogamous.

Notes: *Thelymitra atronitida* is part of the complex assemblage of taxa surrounding *Thelymitra nuda*, a species that has been variously circumscribed by modern flora writers (Bernhardt 1993; Weber & Entwisle 1994) and orchid specialists (Jones 1988; Bates & Weber 1990; Backhouse & Jeanes 1995; Bishop 1996). The type of *T. nuda* comes from northern Tasmania (Western Arm of Port Dalrymple), and a re-examination of this material forms the basis of a narrower circumscription of the taxon by Jones & Clements (1998) (see also Jones *et al.* 1999). *Thelymitra nuda sensu stricto* occurs on the Australian mainland (Jones et al. 1999), and I have seen plants in Victoria (eg. near Omeo) that conform to the new circumscription of the species. However, at present the distribution of *T. nuda* in Victoria is unknown, due largely to confusion with other related taxa. For example, the illustration on page 354 of Backhouse & Jeanes (1995), supposedly depicting *T. nuda*, probably represents an undescribed taxon related to *Thelymitra megcalyptra* Fitzg.

Thelymitra atronitida differs from *T. nuda sensu stricto* in its darker blue, more prominently veined, autogamous flowers, and inflated, dorsally compressed, shortly bilobed, predominantly glossy black column post-anther lobe. The two species do not grow sympatrically. *Thelymitra atronitida* closely resembles *Thelymitra malvina*, but the former usually has only two sterile bracts (usually three in *T. malvina*), fewer, generally smaller flowers that are autogamous (entomophilous in *T. malvina*), a column post-anther lobe that is mostly glossy black (mostly brownish in *T. malvina*) and white hairs tufts on the lateral-lobes (mauve or pink in *T. malvina*). *Thelymitra malvina* is widely distributed from southeastern South Australia to southeastern Queensland (including Tasmania and New Zealand) and occasionally grows sympatrically with *T. atronitida*.

Etymology: From the Latin *ater*, black; *nitidus*, shining; in reference to the column post-anther lobe that is predominantly glossy black.

Thelymitra planicola Jeanes, *sp. nov.*

Thelymitra paniciflorae R. Br. affinis bractea sterili inferna foliiformi plerumque, lobo post-antheram breviore subcylindico truncato, lobis lateralibus longioribus differt.

Type: Victoria, Golden Beach, SE edge of Lake Reeve, 26. x. 1999, *J.A. Jeanes* 608 (holotype MEL *2069957*, isotypes MEL *2069958*, CANB).

Glabrous, somewhat glaucous terrestrial *herb*. *Tubers* not seen. *Leaf* linear to linear-lanceolate, 10-30 cm long, 5-20 mm wide, erect, leathery, canaliculate, dark green with a purplish base, ribbed abaxially, sheathing at base, apex acute. *Scape* 22-45 cm tall, 2-5 mm diam., straight, purplish. *Sterile bracts* 2–4, linear to lanceolate, 2-8 cm long, 5-15 mm wide, green or purplish, lower ones often leaf-like, closely sheathing for most of length, acute to acuminate. *Fertile bracts* ovate-acuminate to obovate-acuminate, 10-20 mm long, 4-8 mm wide, green or purplish, sheathing pedicels. *Pedicels* 1-8 mm long, stout. *Ovary* cylindric to narrow-obovoid, 3-12 mm long, 1.5-4 mm wide. *Flowers* 2-12, (15-)20–25(–30) mm across, medium blue with darker blue longitudinal veins, opening readily only in hot weather. *Perianth segments* (7–)10–13(–15) mm long, 4–8 mm wide, concave, often shortly apiculate; *dorsal sepal* ovate to obovate; *lateral sepals* ovate-lanceolate, slightly asymmetric; *petals* ovate to obovate; *labellum* oblanceolate to obovate, often narrower than other segments; *column* erect from the end of ovary, 5-6 mm long, 3-4 mm wide, white to pale blue; *post-anther lobe* 1.5-2 mm long, 1.5-2 mm wide, hooding, semi-cylindric, gently curved, apex shallowly bilobed, lobes shallowly toothed, mostly dark blackish brown with a thin blue collar, apex yellow; *anxiliary lobes* absent; *lateral lobes* 1.2-2 mm long, linear, obliquely erect, curved, converging, each with a short, terminal, toothbrush-like arrangement of white trichomes, the individual trichomes 0.9-1.5 mm long. *Anther* ovoid, 2.7–4 mm long, 1.5–2.2 mm wide, basal part obscured behind stigma, with a short terminal beak c. 0.5 mm long; *pollinarium* 1.5–2.2 mm long;

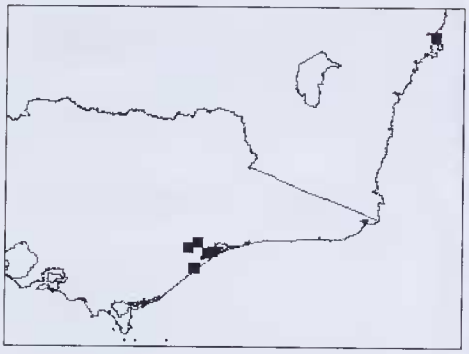

Figure 4. Distribution of *Thelymitra planicola*

Figure 5. *Thelymitra planicola*, Golden Beach

viscidium circular, c. 0.5 mm diam.; *pollinia* white, friable, mealy. *Stigma* more or less quadrate, 2–2.5 mm long, 2–2.5 mm wide, margins irregular, situated at base of column. *Capsules* obovoid, 10–16 mm long, 3.5–7 mm wide, erect, ribbed. (Fig. 1. e–h; Fig. 5)

Specimens examined: NEW SOUTH WALES: Cultivated CANB *ex* Orient Point, E of Nowra, 4 xi. 1988, *D.L. Jones* 3422 (CANB 8807085.1 & CANB 8807085.2). VICTORIA: Gippsland Lakes Coastal Park, 27. x. 1983, *A.C. Beauglehole* 74832 & *W.R. Beauglehole* (MEL *1531699*); Gippsland Lakes Reserve, 27. x. 1984, *A.C. Beauglehole* 78814 & *J.R. Turner* (MEL *669448*); Providence Ponds Flora and Fauna Reserve, 22. x. 1984, *A.C. Beauglehole* 78729 (MEL *670413*); Gippsland Lakes Reserve, 27. x. 1984, *A.C. Beauglehole* 78799 & *J.R. Turner* (MEL *669443* & MEL *2069952*); Lake Reeve, 1. xi. 1993, *D. Rouse* 4 (MEL spirit *2422A*); Golden Beach, SE edge of Lake Reeve, 4. xi. 1996, *J.A. Jeanes* 258 (MEL *2034950*, MEL spirit *4397B*); Rail Reserve WSW of Lindenow South, 27. x. 1999, *J.A. Jeanes* 633 (MEL *2069954*).

Distribution and habitat: Eastern Victoria and the central coast of New South Wales. Most collections are from the eastern section of the Gippsland Plain Natural Region (Conn 1993), between Sale and Bairnsdale, Victoria, with a single disjunct collection from near the New South Wales coast, east of Nowra (Fig. 4). Grows in herb-rich grassland and grassy woodland and heathland on soils ranging from sandy loams to clay loams. Altitude: 0-80 m.

Conservation Status: Poorly known; suggest 3KC by criteria of Briggs & Leigh (1996).

Flowering period: Late October to early November.

Biology: This species is facultatively autogamous.

Notes: *Thelymitra planicola* is a very distinctive species that is characterised by its overall glaucous appearance, moderately tall habit, large leaf-like lower sterile bracts, short pedicels, medium blue, longitudinally veined flowers mostly 20 to 25 mm across, and the short, semi-cylindric column post-anther lobe. The structure of the column post-anther lobe is not shared with any other members of the genus *Thelymitra*, so identification of fresh and spirit-preserved specimens is relatively simple. In the dried and pressed state however, *T. planicola* may be difficult to differentiate from *T. pauciflora*, although the persistent glaucous appearance of the leaf, scape, bracts and ovaries, and the often leaf-like lower sterile bracts are useful distinguishing characters. The structure of the

post-anther lobe of *T. planicola* is somewhat intermediate between those of *Thelymitra aristata* and *T. pauciflora*, but these two species have not been recorded growing sympatrically with *T. planicola*, so the latter is unlikely to be of hybrid origin.

Etymology: From the Latin *planum*, level ground, a plain; *cola*, inhabitant; in reference to the lowland plain habitat favoured by this species.

The following key is provided to distinguish the new species from other members of the *Thelymitra nudalpauciflora* complex in southeastern Australia.

1. Column post-anther lobe semi-cylindric, widely open on the posterior side; lower sterile bracts often large and leaf-like ..... ***T. planicola***
1. Column post-anther lobe tubular, narrowly open on posterior side; sterile bracts never large and leaf-like 2

2. Column post-anther lobe not inflated, more or less continuous with basal part of column 3
2. Column post-anther lobe inflated, discontinuous with basal part of column 4

3. Flowers 20–25 mm across; hairs on lateral lobes in a toothbrush-like arrangement.... ..... ***T. nuda***
3. Flowers usually <20 mm across; hairs on lateral lobes in a mop-like arrangement .... ***T. pauciflora***

4. Plants short and stout, clump-forming; flowers vivid mauve or purple with prominent darker longitudinal veins; basaltic grasslands of western Victoria. ..... ***T. gregaria***
4. Plants tall and slender, usually solitary; flowers pale to dark blue or pink, lacking prominent darker veins. 5

5. Column post-anther lobe not dorsally compressed; perianth segments often >15 mm long; mostly from dry inland habitats ..... ***T. megcalyptra***
5. Column post-anther lobe dorsally compressed; perianth segments usually <15 mm long; mostly from moist near-coastal forests 6

6. Column post-anther lobe mostly glossy black with a yellow apex; hair tufts on column lateral lobes white; sterile bracts usually 2 ..... ***T. atronitida***
6. Column post-anther lobe mostly brown with a yellow apex; hair tufts on column lateral lobes pink or mauve; sterile bracts usually 3 ..... ***T. malvina***

Acknowledgments

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